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Imagery analysis report

Modification of Missile Test Tower Beijing Guided Missile Plant Nanyuan, PRC (TSR)

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MODIFICATION OF MISSILE TEST TOWER BEIJING GUIDED MISSILE PLANT NANYUAN, PRC (TSR)

INTRODUCTION

1. [REDACTED] The Beijing (Pei-ching) Guided Missile Plant Nanyuan (Nan-yuan; [REDACTED] People's Republic of China (PRC), is 13.9 kilometers south of Beijing at the north end of the Beijing/Nanyuan Airfield ([REDACTED] Figure 1). This large facility consists of numerous fabrication/assembly halls, laboratory/engineering buildings, fuel laboratories, and a missile transshipment rail yard. All of the PRC strategic missile systems have probably been assembled at this plant.¹ The First Research Academy of the Seventh Ministry of Machine Industry, which is responsible for the production of strategic missile airframes in the PRC, is also located here.² The Beijing Guided Missile Development Production Center Changxindian (Chang-hsin-tien; [REDACTED]) another major Chinese missile-associated facility, is 21.3 kilometers west of the Nanyuan plant and is connected to it by road and rail.

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SUMMARY

2. (TSR) Modification of the missile test tower (Figure 2) at Beijing Guided Missile Plant Nanyuan began in 1978 and is nearly complete. Vertical dynamic testing of complete strategic missile airframes is conducted within the tower, the only known missile test tower of its type in the PRC. Completion of the modification will result in an improved capability for testing both current production missiles and a follow-on missile system for the CSS-X-4/CSL-2.

BASIC DESCRIPTION

3. (TSR) Evidence of the current test tower modification was first observed in mid-June 1978 when the single-story instrumentation/support section enclosing the base of the tower had been removed (Figures 3A and 3B). Subsequently, reconstruction of the instrumentation/support section into a larger three-story configuration quadrupled the available floor-space. An addition to the northern side of the new instrumentation/support section contains an [REDACTED] portion. Three vertical tank foundations of approximately [REDACTED] meters in diameter were observed within the high portion (Figure 3C). Since only the circular foundations were observed, accurate volumetric figures could not be determined. Figure 3D shows the modification nearly complete. Four nearby support buildings, whose functions are unknown, have been built to the north and northwest of the tower.

crete-surfaced roadway 30 meters northeast of the test tower (Figure 4). This object may be a component of the missile airframe support base which the missile rests on during dynamic testing. Four symmetrical cutouts were observed in the probable component whose diameters are similar to the visual estimate given for the exhaust nozzle apertures for first-stage CSS-X-4/CSL-2 rocket engines.³ The results of mensuration of the probable component suggest that the four booster engine exhaust nozzles would fit into the cutouts.

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4. (TSR) During the early stage of the recent test tower modification, an unusual circular object was observed by the side of the con-

5. (TSR) An expansion program has been underway throughout the Nanyuan missile plant concurrently with the test tower modification. Construction related to the expansion included three laboratory/engineering buildings, nine support buildings, nine barracks, and a new, probable electronic test/calibration area that may be missile related. Also, the power substation serving the missile plant was being expanded. Including the test tower modification, the expansion has resulted in an approximate increase of 10,400

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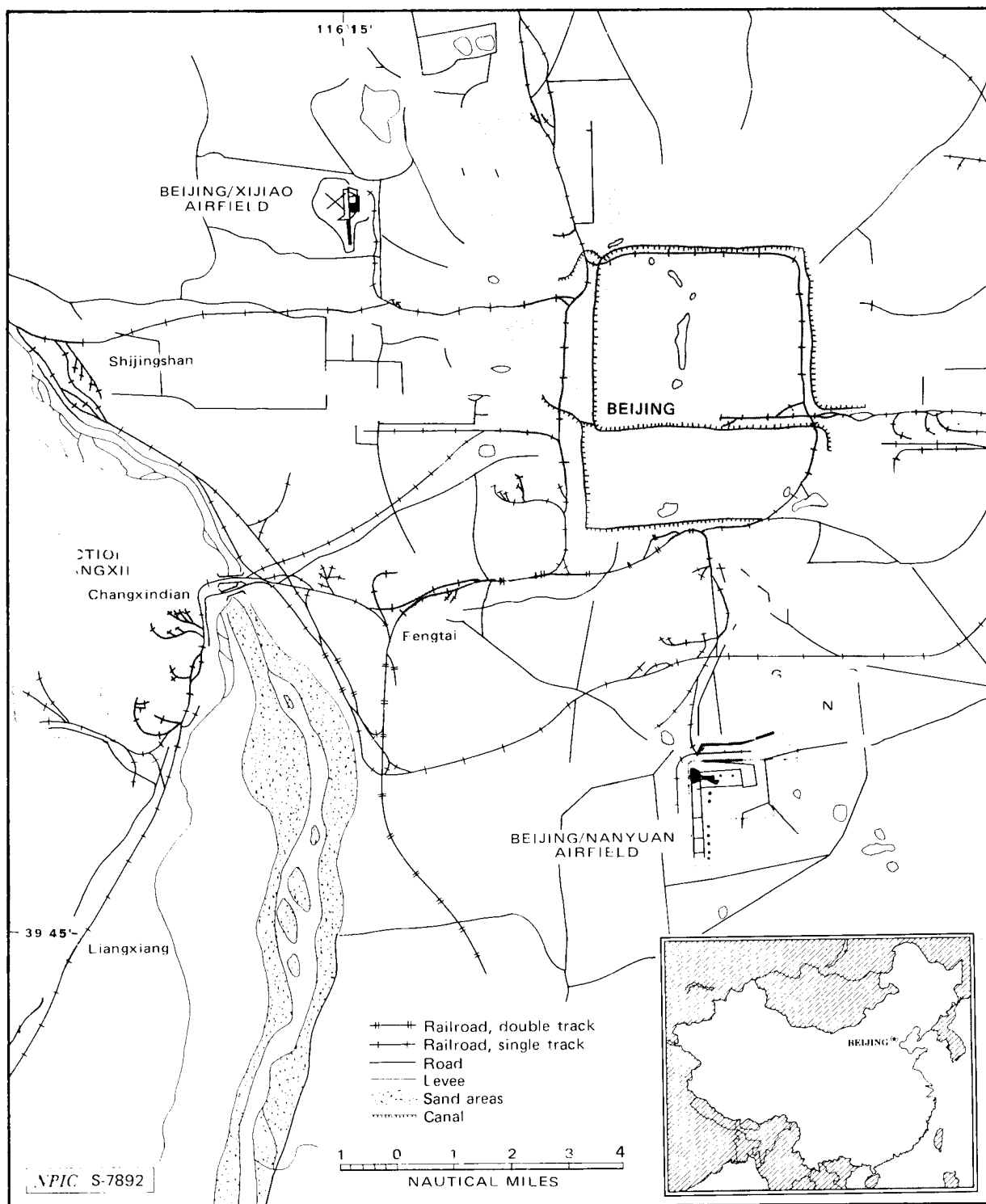


FIGURE 1. LOCATION OF BEIJING GUIDED MISSILE PLANT NANYUAN, PRC

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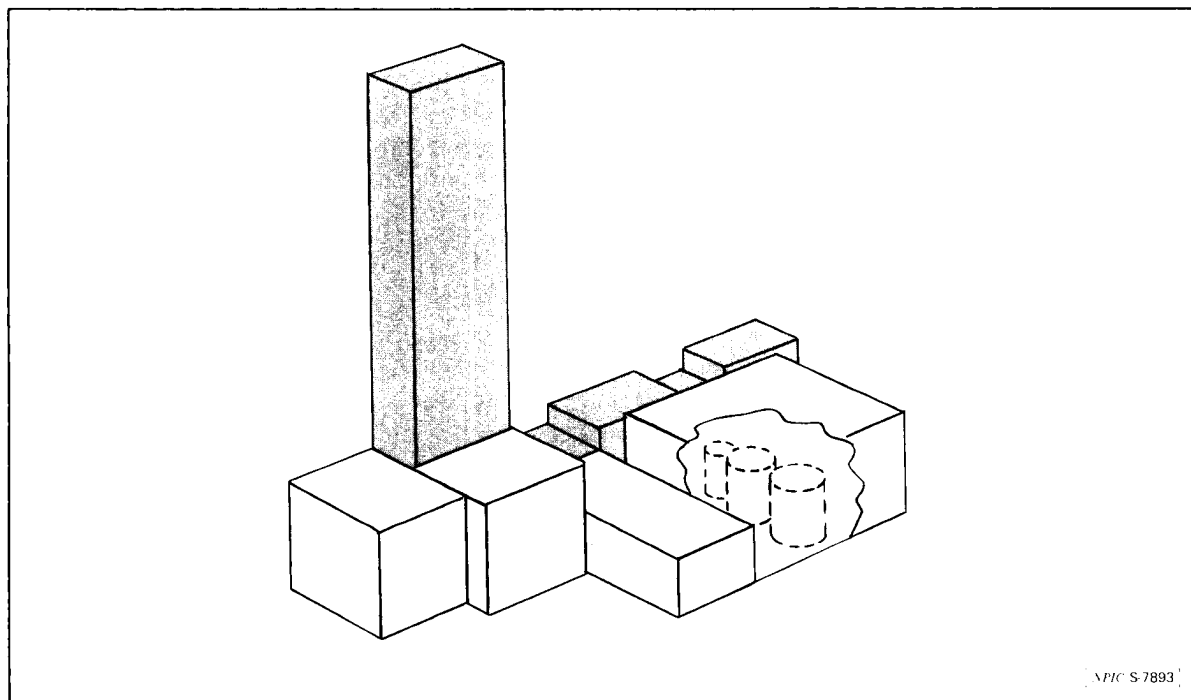


FIGURE 2. PERSPECTIVE DRAWING OF MISSILE TEST TOWER AT NANYUAN AFTER 1978 MODIFICATION

square meters of floorspace for working and 3,500 square meters for living.

Background and Imagery Analyst's Comments

6. [REDACTED] The missile test tower at Nanyuan was originally built during 1962 through 1964.⁴ At that time, the tower was approximately [REDACTED] high (Figure 5), which was adequate to accommodate the CSS-2 and CSS-3 missile airframes. Modification of the tower during 1968 through 1969 increased it to its present height of approximately [REDACTED]. The test bay access doors are [REDACTED] high.⁵ The width of the test bay access doors, [REDACTED] has never been changed. The 1968 modification presaged production of the CSS-X-4/CSL-2 missile, which is [REDACTED] long and [REDACTED] in diameter. During November 1968, the CSS-X-4/CSL-2-associated, type-C missile rail transporter was first identified in the transshipment rail yard at the Nanyuan plant.⁵ This identification was another indication of forthcoming CSS-X-4/ CSL-2 mis-

sile production. CSS-X-4/CSL-2 road transporters were first seen here in November 1970.

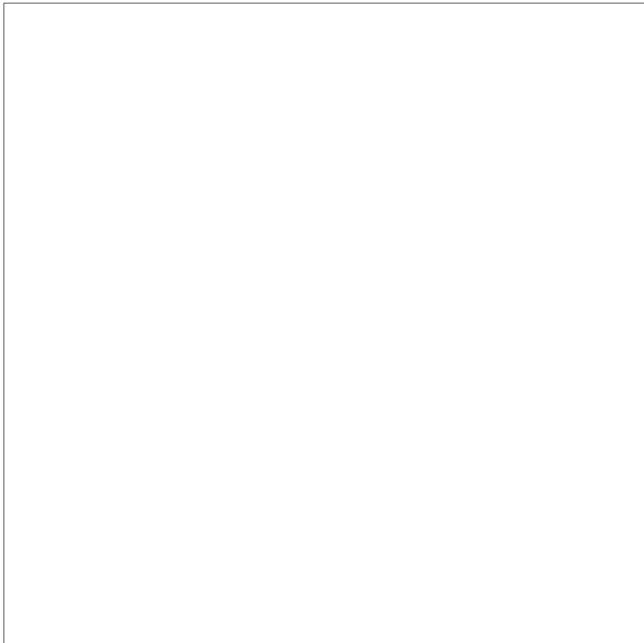
7. (TSR) The Chinese probably took into consideration the size of future missile systems during the 1968 modification. The test bay doors were heightened and approximately 12 meters of vertical clearance was allowed for the CSL-1 and the CSS-X-4/CSL-2, the two largest missile systems in production at that time. The 12 meters of clearance could easily accommodate an add-on third stage for the CSS-X-4/CSL-2 or a larger, entirely new, launch vehicle. The 12 meters of clearance includes 2 meters for the height of the airframe support base in the tower.

8. (TSR) The addition of the three probable vertical tanks inside the high portion of the instrumentation/support section of the test tower (Figure 2) may indicate a new or increased capability for hydrostatic testing. Three small horizontal cylinders observed at the north side of the tower from 1967 to 1975 were the only previous tanks thought to be associated with the test tower.

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speculative explanation for the absence of new missile rail or road transporters is that the anticipated third stage for a new space launch vehicle might be borrowed from an already existing system, such as the CSS-3 second stage, in lieu of the liquid hydrogen-liquid oxygen third stage which has experienced continuing development problems.⁶ The CSS-X-4/CSL-2 would provide first- and second-stage boosters. Should these circumstances occur, upgrading of the test tower diagnostic equipment would be necessary, not development of new-type missile rail or road transporters.

9. (TSR) Information concerning a new first-stage booster for a launch vehicle could possibly be derived from the appearance of a different-sized support base component for the test bay. Return of the probable component that was observed by the side of the road (Figure 4) to the test tower would suggest the intention of testing a launch vehicle with CSS-X-4/CSL-2 first and second stages with an add-on third stage.

10. (TSR) CSS-X-4/CSL-2 first- or second-stage road transporters have not been observed at the Nanyuan plant since [REDACTED] prior to the start of the latest test tower modification. Before that date, CSS-X-4/CSL-2 road transporters had been consistently observed near the test tower or the western rail-served fabrication/assembly hall. Any CSS-X-4/CSL-2 airframes assembled after mid-June 1978 would not have been dynamically tested at the Nanyuan test tower. However, observations of type-C missile rail transporters have continued sporadically both in the transshipment rail yard and on the rail spur serving the western fabrication/assembly hall.

11. (TSR) New or modified missile rail or road transporters have not been identified concurrently with the test tower modification. A

12. (TSR) Extensive expansion at the Beijing Guided Missile Production Center Changxindian suggests that an entirely new liquid propellant missile system is probably under development but will not reach the production phase for several years.⁷ Any new liquid propellant missile system in the planning or development stage will be no larger than that allowed by the dimensions of the vertical test tower at Nanyuan. Otherwise, the Chinese would have enlarged the test bay during the latest modification. A vertical missile test tower has not been identified in the area of the Shanghai (Shang-hai) Guided Missile Production Plant Minhang (Min-hang; [REDACTED]) the only other facility in the PRC known to produce components of the CSS-X-4/CSL-2.

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13. (TSR) In summary, the latest modification of the Nanyuan test tower indicates an improved and expanded testing capability. The increase in working floorspace for the instrumentation/support section of the test tower probably was the result of two factors, the requirement to test a third stage for the CSS-X-4/CSL-2 and the development or acquisition of more sophisticated testing and diagnostic equipment. Any missile system to be tested in the newly configured tower cannot be significantly larger in diameter but can be up to 12 meters higher than the CSS-X-4/CSL-2. Although the external modification is almost complete, the test tower will probably not become operational until new test support equipment can be installed and checked out.

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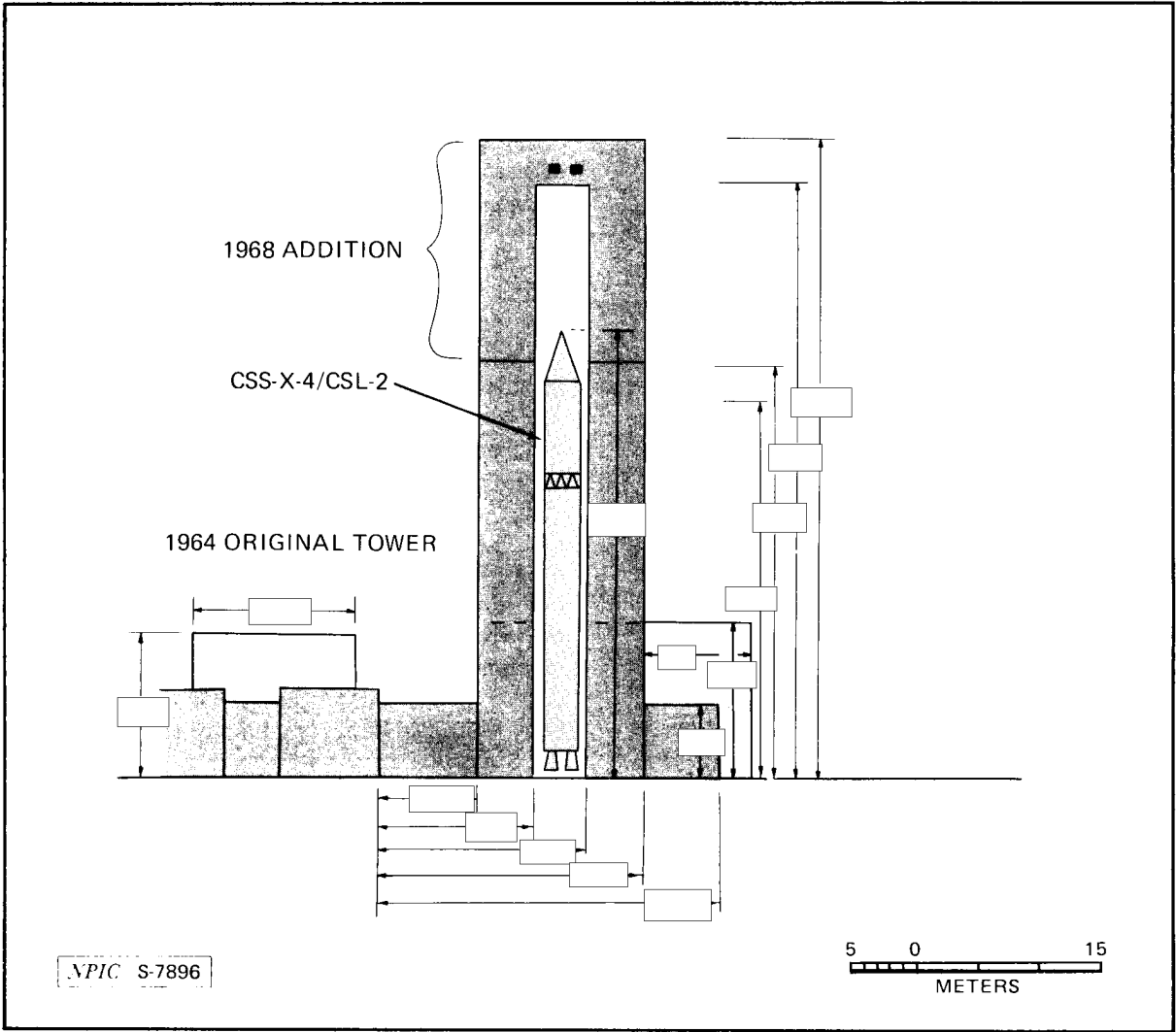
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FIGURE 5. FRONTAL DRAWING OF TEST TOWER

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REFERENCES

IMAGERY

(TSR) All applicable KEYHOLE imagery acquired between [redacted]
[redacted] was used in the preparation of this report.

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REQUIREMENT

Project 130119NS

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted]
Asian Forces Division, Imagery Exploitation Group, NPIC, [redacted]

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